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U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
Re33662	August 1991	Blair et al.	N/A
4655451	April 1987	Townsley	273/32H
5146557	September 1992	Yamrom et al.	N/A
5319548	June 1994	Germain	N/A

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ABSTRACT:

A video game system for simulating a golf game displays three-dimensional image information indicative of the terrain profile of a golf course and image information of a golf ball on the display screen of a television monitor. The golf ball is moved on the display screen based on the image information indicative of the terrain profile and a command from a controller operated by the game player. A guide comprising a matrix of lines is displayed on the display screen, and the luminance and length of each of said lines are established based on the image information indicative of the terrain profile. The guide is three-dimensionally displayed over the three-dimensional image information indicative of the terrain profile on said display screen. The three-dimensionally displayed guide allows the game player to visually recognize heights and distances of various areas of the golf course in an intuitive fashion, and hence allows the game player to operate the controller in a manner to match terrain features of the golf course in the game space.

37 Claims, 30 Drawing figures

Brief Summary Paragraph Right - BSPR:

According to another aspect of the present invention, there is provided a method of displaying a guide in a display space in a video game system for displaying image information indicative of a terrain profile and image information of a movable object on a display screen, and moving the movable object on the display screen based on the image information indicative of the terrain profile and a command from a controller, comprising the steps of displaying a guide comprising a plurality of lines on the display screen, and establishing a luminance and a length of each of the lines based on the image information indicative of the terrain profile.

Brief Summary Paragraph Right - BSPR:

According to still another aspect of the present invention, there is provided a method of displaying a guide in a display space in a video game system for displaying image information indicative of a terrain profile and image information of a movable object on a display screen, and moving the movable object on the display screen based on the image information indicative of the terrain profile and a command from a controller, comprising the step of displaying a guide comprising a plurality of lines on the display screen based on

the image information indicative of the terrain profile, if the command from the controller indicates display of the guide.

Brief Summary Paragraph Right - BSPR:

According to yet still another aspect of the present invention, there is provided a video game system comprising display means for displaying image information of a terrain profile and image information of a movable object on the terrain profile on a display screen, controller means for entering commands, and control means for moving the movable object displayed on the display screen based on the image information of the terrain profile and a command from the controller means, the control means comprising address establishing means for establishing minimum and maximum addresses of the terrain profile on the display screen, address acquiring means for acquiring minimum and maximum addresses of a display range in which a guide indicative of terrain features based on the image information of the terrain profile is displayed over the terrain profile, height data correcting means for correcting height data indicative of heights of portion of the terrain profile in the display range based on a height of the position of the movable object, and guide display means for displaying the guide over the terrain profile with a luminance based on the corrected height data.

Brief Summary Paragraph Right - BSPR:

According to a still further aspect of the present invention, there is provided a recording medium having recorded therein game program data for displaying image information indicative of a terrain profile and image information of a movable object on a display screen, moving the movable object on the display screen based on the image information indicative of the terrain profile and a command from a controller, displaying a guide comprising a plurality of lines on the display screen, and establishing a luminance and a length of each of the lines based on the image information indicative of the terrain profile.

Brief Summary Paragraph Right - BSPR:

According to a yet still further aspect of the present invention, there is provided a recording medium having recorded therein game program data for displaying image information indicative of a terrain profile and image information of a movable object on a display screen and moving the movable object on the display screen based on the image information indicative of the terrain profile and a command from a controller, the game program including the step of displaying a guide comprising a plurality of lines on the display screen based on the image information indicative of the terrain profile, if the command from the controller indicates display of the guide.

Brief Summary Paragraph Right - BSPR:

According to another aspect of the present invention, there is further provided a method of establishing a hitting position for hitting a movable object thereby to move the movable object in a game space of a video game system in response to operation of a controller by a game player, comprising the steps of displaying the movable object at a fixed position in the game space, displaying a horizontal position establishing image for horizontal movement with respect to the movable object, storing a horizontal position of the horizontal position establishing image when the game player presses a corresponding button on the controller, displaying a vertical position establishing image for vertical movement with respect to the movable object, storing a vertical position of the vertical position establishing image when the game player presses a corresponding button on the controller, and determining the horizontal position and the vertical position as a hitting position for hitting the movable object when the game player operates the controller to hit the movable object in the game space.

Brief Summary Paragraph Right - BSPR:

According to still another aspect of the present invention, there is provided a video game system for hitting a movable object thereby to move the movable object in a game space response to operation of a controller by a game player, comprising means for displaying the movable object at a fixed position in the game space, image display means for displaying horizontal and vertical position establishing images for horizontal and vertical movement with respect to the movable object, storage means for storing horizontal and vertical positions of the respective horizontal and vertical position establishing images when the game player presses corresponding buttons on the controller, and position determining means for determining the horizontal and vertical positions as a hitting position for hitting the movable object when the game player operates the controller to hit the movable object in the game space.

Brief Summary Paragraph Right - BSPR:

According to yet still another aspect of the present invention, there is provided a recording medium readable by a computer and having recorded therein game program data of a video game for hitting a movable object thereby to move the movable object in a game space response to operation of a controller by a game player, the game program data comprising the steps of displaying the movable object at a fixed position in the game space, displaying a horizontal position establishing image for horizontal movement with respect to the movable object, storing a horizontal position of the horizontal position establishing image when the game player presses a corresponding button on the controller, displaying a vertical

position establishing image for vertical movement with respect to the movable object, storing a vertical position of the vertical position establishing image when the game player presses a corresponding button on the controller, and determining the horizontal position and the vertical position as a hitting position for hitting the movable object when the game player operates the controller to hit the movable object in the game space.

Detailed Description Paragraph Right - DEPR:

The audio data that have been error-corrected by the decoder 17 are supplied to the main memory 5 or the audio processor 13, and stored in the main memory 5 or the buffer 14. The game program data that have been error-corrected by the decoder 17 are supplied to and stored in the main memory 5. Subsequently, the CPU 1 executes the video game based on the game program data stored in the main memory 5 and commands entered into the controller 22 by the game player. Specifically, the CPU 1 controls image processing, audio processing, and internal processing operations based on commands entered into the controller 22 by the game player. In the image processing operation, two- or three-dimensional coordinate data and viewpoint position data are supplied to the graphic data generating processor 3, and graphic commands including address data in the display area of the buffer 11, determined by the graphic data generating processor 3, and luminance data are issued. In the audio processing operation, an audio output command is issued to the audio processor 13 and level, reverberation, and other settings are indicated. In the internal processing operation, calculations are carried out based on commands entered into the controller 22 by the game player.

Claims Paragraph Right - CLPR:

5. A video game system according to claim 1, wherein said video game system comprises a golf game system, said image information indicative of the terrain profile comprises image information indicative of a golf course, and said image information of the movable object comprises image information of a golf ball.

Claims Paragraph Right - CLPR:

9. A method of displaying a guide in a display space in a video game system for displaying image information indicative of a terrain profile and image information of a movable object on a display screen, and moving the movable object on the display screen based on the image information indicative of the terrain profile and a command from a controller, comprising the steps of:

Claims Paragraph Right - CLPR:

11. A recording medium having recorded therein game program data for displaying image information indicative of a terrain profile and image information of a movable object on a display screen, moving the movable object on the display screen based on the image information indicative of the terrain profile and a command from a controller, displaying a guide comprising a plurality of lines on the display screen, and establishing a progressive luminance and a length of each of said lines based on the image information indicative of the terrain profile.

Claims Paragraph Right - CLPR:

13. A recording medium according to claim 11, wherein said game program data comprises program data for a golf game, said image information indicative of the terrain profile comprises image information indicative of a golf course, and said image information of a movable object comprises image information of a golf ball.

Claims Paragraph Right - CLPR:

15. A recording medium according to claim 11, wherein a direction in which said movable object is to move is established, and said image information indicative of the terrain profile and said guide are three-dimensionally displayed on said display screen depending on the established direction.

Claims Paragraph Right - CLPR:

17. A method of displaying a guide in a display space in a video game system for displaying image information indicative of a terrain profile and image information of a movable object on a display screen, said image information indicative of the terrain profile including information representative of the height of a vertex in which the vertex is a point on the terrain profile, and moving the movable object on the display screen based on the image information indicative of the terrain profile and a command from a controller, comprising the steps of:

Claims Paragraph Right - CLPR:

19. A method according to claim 17, wherein said video game system comprises a golf game system, said image information indicative of the terrain profile comprises image information indicative of a golf course, and said image information of the movable object comprises image information of a golf ball.

Claims Paragraph Right - CLPR:

22. A method of displaying a guide in a display space in a video

game system for displaying image information indicative of a terrain profile and image information of a movable object on a display screen, and moving the movable object on the display screen based on the image information indicative of the terrain profile and a command from a controller, comprising the step of:

Claims Paragraph Right - CLPR:

24. A method of displaying a guide in a display space in a video game system for displaying image information indicative of a terrain profile and image information of a movable object on a display screen, and moving the movable object on the display screen based on the image information indicative of the terrain profile and a command from a controller, comprising the steps of:

Claims Paragraph Right - CLPR:

25. A method of displaying a guide in a display space in a video game system for displaying image information indicative of a terrain profile and image information of a movable object on a display screen, said image information indicative of the terrain profile including information representative of the height of a vertex in which the vertex is a point on the terrain profile, and moving the movable object on a display screen based on a command from a controller, comprising the steps of:

Claims Paragraph Right - CLPR:

29. A method according to claim 25, wherein said video game system comprises a golf game system, said image information indicative of the terrain profile comprises image information indicative of a golf course, and said image information of a movable object comprises image information of a golf ball.

Claims Paragraph Right - CLPR:

30. A recording medium having recorded therein game program data for displaying image information indicative of a terrain profile and image information of a movable object on a display screen, said image information indicative of the terrain profile including information representative of the height of a vertex in which a vertex is a point on the terrain, moving the movable object on the display screen based on the image information indicative of the terrain profile and a command from a controller, displaying a guide comprising a plurality of lines on the display screen, and establishing a luminance and a length of each of said lines based on the image information indicative of the terrain profile, said image information indicative of the terrain profile including information representative of the height of a vertex in which a vertex is a point on the terrain

profile, the luminance of each of said lines being established depending on the relationship between the height of a vertex corresponding to a vertex corresponding to a starting point of the line and the height of a vertex corresponding to an ending point of the line, said luminance of each of said lines being established such that the luminance is progressively lower from said starting point toward said ending point if the height of the vertex corresponding to the starting point is greater than the height of the vertex corresponding to the ending point and the luminance is progressively greater from said starting point toward said ending point if the height of the vertex corresponding to the starting point is smaller than the height of the vertex corresponding to the ending point.

Claims Paragraph Right - CLPR:

31. A recording medium having recorded therein game program data for displaying image information indicative of a terrain profile and image information of a movable object on a display screen and moving the movable object on the display screen based on the image information indicative of the terrain profile and a command from a controller, said game program including the step of:

Claims Paragraph Right - CLPR:

33. A recording medium having recorded therein game program data for displaying image information indicative of a terrain profile and image information of a movable object on a display screen and moving the movable object on the display screen based on the image information indicative of the terrain profile and a command from a controller, said game program including the step of:

Claims Paragraph Right - CLPR:

36. A recording medium according to claim 33, wherein said game program data comprises program data for a golf game, said image information indicative of the terrain profile comprises image information indicative of a golf course, and said image information of a movable object comprises image information of a golf ball.

Claims Paragraph Right - CLPR:

37. A recording medium having recorded therein game program data for displaying image information indicative of a terrain profile and image information of a movable object on a display screen and moving the movable object on the display screen based on the image information indicative of the terrain profile and a command from a controller, said image information indicative of the terrain profile including information representative of the height of a vertex in which the vertex is a point on the terrain profile, said game program

including the step of displaying a guide comprising a plurality of lines on the display screen based on said image information indicative of the terrain profile, if the command from the controller indicates display of the guide, a luminance of each of said lines being established depending on the relationship between the height of a vertex corresponding to a starting point of the line and the height of a vertex corresponding to an ending point of the line, said luminance of each of said lines being established such that the luminance is progressively lower from said starting point toward said ending point if the height of the vertex corresponding to the starting point is greater than the height of the vertex corresponding to the ending point and the luminance is progressively greater from said starting point toward said ending point if the height of the vertex corresponding to the starting point is smaller than the height of the vertex corresponding to the ending point.

Claims Paragraph Type 1 - CLPV:

display means for displaying image information of a terrain profile and image information of a movable object movable on the terrain profile on a display screen;

Claims Paragraph Type 1 - CLPV:

control means for moving the movable object displayed on said display screen based on the image information of the terrain profile and a command from said controller means;

Claims Paragraph Type 1 - CLPV:

establishing a direction in which said movable object is to move;
and

Claims Paragraph Type 1 - CLPV:

establishing a direction in which said movable object is to move;
and

Claims Paragraph Type 1 - CLPV:

determining minimum and maximum addresses of a display range in which said guide is displayed, based on the position of said movable object;

Claims Paragraph Type 1 - CLPV:

subtracting height data of said movable object from height data of said terrain profile which corresponds to an address indicated by said address variable thereby to correct the height data of said

terrain profile with respect to the height data of said movable object;

Claims Paragraph Type 2 - CLPW:

height data correcting means for correcting height data indicative of heights of portion of the terrain profile in said display range based on a height of the position of said movable object; and

Claims Paragraph Type 2 - CLPW:

determining minimum and maximum addresses of a display range in which said guide is displayed, based on the position of said movable object;

Claims Paragraph Type 2 - CLPW:

subtracting height data of said movable object from height data of said terrain profile which corresponds to an address indicated by said address variable thereby to correct the height data of said terrain profile with respect to the height data of said movable object;

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